



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

indicated during at least twenty years in elementary treatises. Again, although a citizen of Pennsylvania—a State one of whose most remarkable evidences of wealth is the fact that she is the holder of the great anthracite basin and of a portion of the chief bituminous measures—although a resident of Philadelphia, whose principal domestic export is coal, it is assumed that I could overlook the fact that there are vast deposits of coal in North America. It ought, perhaps, to be said in this connection, that the author has wholly misunderstood my observations with respect to the comparative quantities of vegetable product in the carboniferous period and that in which we live. Considering that we do not know the extent of the area of growth in the carboniferous period, nor the length of time consumed in forming the deposits of vegetable matter which make the coal beds; and taking into view solidity as well as size, and the multiplication of individual growths, it is certainly not going very far to say that it is not “patent to all” that the total quantity of vegetable growth upon the earth during a given space of time was greater in the carboniferous than in the present period. I made no affirmative assertion; and in the absence of conclusive proof, I have none to make now. It is enough to indicate the irrelevance of the reasoning employed by the author upon pages 174 and 175.

With respect to the scientific criticism which has occasioned these remarks, it gives me no concern. It, or its equivalent, will be judged by proper persons. It has been in the hands of many whose minds have been disciplined in the best methods of inquiry; and from no quarter had I reason to suspect the existence of dissent until the appearance of the book before us. It is to be hoped that on both sides of the Atlantic there will be cultivated a mutual confidence, which shall prevent misconception of motives; and that hereafter the vigilance which is indispensable to preserve the pursuits of philosophy from unconscious bias, shall not be misconstrued as the intrusion of an unfriendly spirit. *Felix quem faciunt aliena pericula cautum.* In conclusion, I beg to renew the expression of my regret, that any accident should have made me the occasion of pain to a gentleman so deserving of our consideration and friendly esteem as was the author of “The Testimony of the Rocks.” It cannot but enhance the appropriateness of such an expression at this meeting, that beside yourself and your colleague, the other Vice President, who usually preside over the deliberations of the Academy, I see here to night its venerable President, and several other learned members, whose names are familiar to cultivators of the natural sciences in Great Britain.

May 12th.

Vice President BRIDGES in the Chair.

Communications were received, for publication in the Proceedings, entitled, as follows:

Notes Explanatory of a Map and Section illustrating the Geological structure of the country bordering on the Missouri River, from the mouth of Platte River to Fort Benton, in lat. $47^{\circ} 30'$ N. long., $110^{\circ} 30'$ W., by F. V. Hayden, M. D.

On the Larva of *Thyreus Abbottii*, by J. P. Kirtland, M. D.

Which as usual were referred to Committees.

Mr. Harris observed, in relation to the specimens of cotton-wood and chips cut by beavers, presented this evening, that they had been obtained by him from the Missouri River, between Fort Union, at the mouth of the Yellowstone, and Fort Clark, at the Mandan Village. He added, that in returning from a trip up the Missouri to the mouth of the Yellowstone, in company with the late J. J. Audubon and party, in the month of September, 1843, our Mackinaw boat was moored for the night on the right bank of the river, under shelter of timber on the bank, which was here about twenty feet above the water at its then 1857.]

rather low stage. Our guide and pilot in descending the river, Prevost, who was an old trapper, hired by Mr. A. at St. Louis for the trip, soon discovered signs of the beaver, and presently a newly constructed beaver-house about one hundred yards above the boat. It was too late to examine the premises, and after cutting wood, building a fire, and cooking our supper, we turned in for the night. Very early in the morning, before breakfasting, we hastened to examine what had been the object of more than one expedition on the Yellowstone, and which had, heretofore, baffled our search. Prevost assured us that the noise and smell of smoke, and cooking from our camp, must have driven the beaver to a place of safety soon after our landing the night before, and that we could only gratify our curiosity by the inspection of the building; whereas, had daylight permitted, we might, at first landing, have proceeded quietly and stopped the covered outlet from the house to the water, and thus secured the inmates, and this only by using the utmost caution in approaching without giving them the wind of us, or making the slightest noise, even the crackling of a dry twig under our feet; so religiously did he believe in their superhuman sagacity in discovering and avoiding danger. Thus assured, I took my gun, more from the influence of the habit of some months of seldom stirring from camp without it, than from any expectation of seeing a beaver. I followed the water to the outlet, while others took the bank; here I stood watching the operations of those above, who had commenced removing the branches of cotton-wood which formed the covering of the domicile. I was startled suddenly by the splashing of the water at my feet, and, looking down, I saw the dusky back of a beaver a few inches under the surface, gliding out into the deep water of the river, and before I could prepare and bring my gun into position, he was out of sight. Nothing could have been easier, had I been prepared, than to have shot him as he thus passed within three feet of the spot on which I stood. Thus, from too much reliance on popular tradition of the unerring instinct of this animal, was I prevented from adding the skin, and description, and measurements of a fresh specimen of the beaver to the trophies of our expedition. As the beaver passed down the stream he was seen to rise for air, abreast of our boat, by some of the men on board. We then proceeded to unroof the house by removing the cotton-wood branches, which covered it for several feet in thickness; they extended for a considerable width on each side, and covered the passage from the house to the water; this passage was about fourteen inches square, as neatly excavated as a ditcher could have made it with a spade; it was from twenty-five to thirty feet long, following the slope of the bank, and ending some two or three feet under the water. The branches were laid with their butts uppermost, and formed a complete thatching to the house, nearly weather-proof. The house itself was a vertical excavation into the bank, cylindrical in form and about three and a half feet in diameter; the slope of the bank, where it was cut, gave it the figure of a section of a cylinder of about four feet high on the side of the bank, and the height of the passage to the river, on the other, about fourteen inches. The bottom and walls of this room were smooth and hard as though they had been pressed or beaten, but not plastered. The circle was apparently perfect in form. I should have said, it was rather more than half-way up the bank. Prevost said that the house was unfinished, and that, before winter, the whole interior earth and brush of the sides and roof would have been neatly plastered with clay so as to render it entirely weather-proof. The quantity of cotton-wood branches and saplings used in this structure was enormous; I suspect the measurement would have been about three cords, or as many wagon loads, and so closely impacted that it was only after considerable labor that a breach was made. On the bank above was the area of *stump-land* where they had felled their timber, taking what was suitable from the most convenient distance. The large block presented this evening was cut from the largest log felled; the branches only were taken, leaving the trunk where it fell. Small saplings were taken entire. The smaller piece, which is cut at both ends, was the butt of a bough or sapling, which, in their attempt to drag to the bank, had become wedged among a clump of bushes in such a manner that they could not

[May,

back it out again, owing to the resistance of the branches on the ground and of other bushes, so, like the sailor who throws overboard a portion of his cargo to enable him to save the rest, they cut off this piece that they might steer clear of the difficulty with the remnant of their treasure. The chips are from the larger specimen; in cutting them out they must work horizontally around the trunk, and when they have cut two grooves at the proper distance apart, they take hold of the isolated portion with their teeth, and split off portions *vertically*, and so in succession split off chips until they have girdled the tree; a second course is then removed from the bottom of this, and so on diminishing the size of the chips until the tree is only supported by a portion of its heart connecting the apices of two cones—one on the stump upright, the other on the butt of the log inverted. In this manner, also, the Indians cut down trees with their hatchets, leaving the same form of a cone on the butt of the log and on the stump, as their beaver neighbors have done before them.

May 26th.

MR. S. ASHMEAD in the Chair.

The Committees to whom were referred the following papers, reported in favor of their publication:

“Notes Explanatory of a Map and Section illustrating the geological structure of the country bordering on the Missouri River, from the mouth of Platte River to Fort Benton, in lat. $47^{\circ} 30' N.$, long. $110^{\circ} 30' W.$, by F. V. Hayden, M. D.”

“Explorations under the War Department: Description of new Cretaceous and Tertiary Fossils collected by Dr. F. V. Hayden in Nebraska, under the direction of Lieut. G. K. Warren, U. S. Top. Engineer, with some remarks on the geology of the Upper Missouri country; by F. B. Meek and Dr. F. V. Hayden.”

“On the Larva of *Thyreus Abbotii*, by J. P. Kirtland, M. D.”

EXPLORATIONS UNDER THE WAR DEPARTMENT.

Notes Explanatory of a Map and Section Illustrating the Geological structure of the country bordering on the Missouri River, from the mouth of the Platte River to Fort Benton, in lat. $47^{\circ} 30' N.$, long. $110^{\circ} 30' W.$

BY F. V. HAYDEN, M. D.

(Communicated by permission of the Secretary of War.)

The facts from which the accompanying map and section have been constructed, are mainly the results of three years' explorations by me in the north west;* and although some of them have heretofore been given to the public in brief written accounts of the geology of that country,† this is the first time they have been presented in this form.

In regard to the Map, I would simply state that it is based on the most recent topographical explorations. The geology, however, is of course not

* The geology of portions of north-eastern Kansas has been colored on this map from information kindly furnished by Maj. F. Hawn, of Weston, Missouri, U. S. Dep. Surveyor in that region.

For the information respecting the geology of Platte River valley, I am indebted to Mr. Henry Pratten of the Geological Survey of Illinois.

† See several papers by Mr. Meek and the writer in 8th vol. Proceed. Acad. Nat. Sci., Philada.